

REMARKS

Claims 1-46 are pending in the present patent application. Claims 2-12 and 25-35 are allowed; claims 1, 14, 18, 21, 24, 37 and 41-45 stand rejected; and claims 13, 15-17, 19, 20, 22, 23, 36, 38-40 and 46 stand objected to. This application continues to include claims 1-46.

Applicants thank the Examiner for allowing claims 2-12 and 25-35. Applicants note that although the Office Action Summary indicates that claims 2-12 and 25-35 are allowed, the Detailed Action still indicates that claims 2-12 and 25-35 are objected to. Applicants had previously amended claims 2 and 25 into independent form in their previous Amendment, electronically filed November 22, 2006. Applicants thus respectfully request the Examiner to confirm that claims 2-12 and 25-35 are allowed.

Claims 13, 15-17, 19, 20, 22, 23, 36, 38-40 and 46 are objected to as being dependent upon a rejected base claim. The Examiner has indicated that claims 13, 15-17, 19, 20, 22, 23, 36, 38-40 and 46 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants thank the Examiner for the indication of allowability regarding claims 13, 15-17, 19, 20, 22, 23, 36, 38-40 and 46. In view of Applicants response to the rejection of claims 1, 18, 24 and 41, Applicants respectfully request the Examiner to withdraw the objection to claims 13, 15-17, 19, 20, 22, 23, 36, 38-40 and 46.

Applicants thank the Examiner for providing the Response to Arguments in the present Office Action.

Claims 1, 14, 18, 21, 24, 37 and 41-45 were rejected under 35 U.S.C. §102(b) as being unpatentable over Harriman, et al., U.S. Patent No. 6,244,765 B1 (hereinafter, Harriman).

Applicants respectfully request reconsideration of the rejection of claims 1, 14, 18, 21, 24, 37 and 41-45 in view of the following.

Harriman is directed to a vibration isolating attachment system for securing a drive belt to an inkjet printhead carriage for increasing print quality (col. 1, lines 6-8). Harriman discloses a vibration isolating attachment system 90 for coupling a carriage drive belt 78 to a carriage 40 (col. 5, lines 57-59, Fig. 3). The attachment system 90 has a pair of vibration isolating attachment members, coupling members or links 95 in the shape of an I-beam formed from an elastomeric material (col. 5, lines 63-67, Fig. 3).

The vibration isolating attachment members 95 link the drive mechanism to the inkjet printhead carriage 40 to isolate the carriage from at least some of the vibrations generated by the drive motor 85, and being made of a resilient material, vibration transferred from operation of the motor 85 through belt 78 to the belt interface 80, is isolated and dampened in any of the X, Y, Z or composite directions, including twisting or torsional vibrations, transients and harmonics (col. 6, lines 16-27). The damping characteristics of the attachment members 95 may be easily modified for different styles and models of printers by making dimensional and material changes to the attachment members 95 (col. 6, lines 64-67). Since the elastomeric nature of the attachment links 95 allows stretching all directions, vibrations in any direction are dampened (col. 6, line 67 to col. 7, line 3).

Applicants believe that claims 1, 14, 18, 21, 24, 37 and 41-45 patentably define Applicants' invention over Harriman, for at least the reasons set forth below.

Claim 1 is directed to an interface device for attaching a printhead carrier to a carrier drive belt, and recites, in part, an isolator coupled between said belt holder and said printhead carrier,

said isolator being configured to provide directionally dependent filtering along a main scan direction of said printhead carrier of vibrations propagating to said printhead carrier.

Applicants respectfully submit that Harriman does not disclose, teach, or suggest the aforementioned subject matter of claim 1 for at least the reasons set forth in Applicants' previous Response, electronically filed May 16, 2007.

Rather, Harriman discloses the use of vibration isolating attachment members that damp vibrations in various direction, but without providing directionally dependent filtering, much less directionally dependent filtering along a main scan direction of the printhead carrier of vibrations propagating to the printhead carrier, as recited in claim 1.

Although Harriman discloses that vibration isolating attachment members 95 isolate the carriage 40 from some of the vibrations generated from the operation of the motor 85, and that the vibration may be isolated and damped in any of the X, Y, Z or composite directions, including twisting or torsional vibrations, transients and harmonics, Harriman simply does not disclose, teach, or suggest in any manner that the damping provided by vibration isolating attachment members 95 in any of the disclosed directions yields directionally dependent filtering. There is simply no filtering performed by the Harriman apparatus that is directionally dependent, i.e., where the filtering is dependent upon direction.

In the present Response to Arguments, it is asserted that Harriman discloses an isolator 95 that dampens vibrations in any direction, and that Harriman dampens vibrations in all directions, that would include the main scanning direction, and that the dampening of vibrations is dependent on the direction of the printhead carrier. It is also asserted that the isolator 95 may have different vibration characteristics dependent on the direction, but the isolator will still function and provide dampening of the vibrations in all directions.

Applicants do not disagree that Harriman dampens vibrations in different directions. For example, Harriman discloses that the use of elastomeric attachment members 95 allows for dampening of vibrations in any of the X, Y, Z or composite directions, including twisting or torsional vibrations, transients and harmonics (col. 6, lines 23-27), which supports the proposition that vibrations are dampened in many different directions.

However, the fact that Harriman discloses dampening in the disclosed directions does not imply in any manner that the dampening yields directionally dependent filtering along the main scan direction of the printhead carrier of vibrations propagating to the printhead carrier.

For example, a statement by Harriman that dampening is provided in different directions does not address how much dampening is provided in the different directions, such as might otherwise indicate that the amount of dampening, and the frequency at which the dampening characteristics of the elastomeric attachment members 95 are effective, yields directionally dependent filtering along the main scan direction.

Thus, although Harriman may disclose providing dampening in all directions, Harriman simply does not disclose, teach, or suggest that the amount of dampening provided by elastomeric attachment members 95 varies with the direction along the main scan direction, e.g., forward vs. reverse.

On the contrary, the Harriman depictions of elastomeric attachment members 95 illustrate that the attachment members 95 are symmetric about a vertical line, and thus provide the same degree or amount of dampening whether the printhead is traveling from left-to-right or from right-to-left. Thus, the Harriman Figs., e.g., Fig. 3, support Applicants' position that Harriman does not disclose, teach, or suggest directionally dependent filtering along the main scan direction of the printhead carrier of vibrations propagating to the printhead carrier.

Harriman simply does not in any manner otherwise provide any information as might disclose teach or suggest that the dampening of vibrations along the main scan direction is directionally dependent, that is, directionally dependent filtering along the main scan direction.

Stated differently, Harriman simply does not disclose, teach, or suggest that the damping in one direction along the main scan direction, e.g., the right-to-left direction is different than the damping in the other direction along the main scan direction, e.g., the left-to-right direction, such as might otherwise pertain to directionally dependent filtering along the main scan direction of the printhead carrier.

In addition, Harriman does not address the concept of directionally dependent filtering, but rather, merely indicates that dampening is provided in many different directions, without addressing whether the amount of dampening varies with direction, much less directions along the main scan direction.

Although it is asserted that the Harriman attachment members 95 *may* have different vibration characteristics dependent on the direction, there is nothing in the Harriman disclosure that would support the proposition that there is directionally dependent filtering along the main scan direction of the printhead carrier of vibrations propagating to the printhead carrier. Nor has it been pointed out with specificity where in the Harriman disclosure such directionally dependent filtering along the main scan direction is described or illustrated.

Again, Harriman depicts, e.g., in Fig. 3, that the attachment members 95 and the mounting thereof are symmetric in both directions along the main scan direction, e.g., left-to-right and right-to-left, and hence, Applicants respectfully submit that there is not support in the Harriman disclosure for the proposition that the dampening provided by the attachment members 95 depends on the direction along the main scan direction, e.g., right to left vs. left to right.

In addition, as set forth in their previous Response, Harriman does not disclose, teach, or suggest recognition of a problem pertaining to carrier drive characteristics resulting in vibration being different depending on the direction of travel, and hence, does not disclose, teach, or suggest knowledge of the problem to be solved by Applicants' invention.

For example, unlike the Harriman disclosure, Applicants have recognized the problem, e.g., as set forth in Applicants' specification at page 2, lines 1-14, which is reproduced below for the sake of convenience.

None of the prior systems, however, are designed to account for variations in the vibrations based on the direction of travel of the printhead carrier. For example, in one common carrier drive configuration, the carrier is transported in one direction by a direct pulling of the carrier by the carrier motor pulley, whereas to transport the carrier in the opposite direction, the carrier motor pulley indirectly pulls the carrier via an idler pulley. Thus, the mechanism for transporting the carrier has different drive characteristics depending on the direction of carrier travel, and accordingly, has differing vibration characteristics depending on the direction of carrier travel.

What is needed in the art is a device that provides directionally dependent damping of vibrations in a printhead carrier system, including its drive mechanism.

The present invention provides directionally dependent damping of vibrations in a printhead carrier system, including its drive mechanism. (Emphasis added).

Applicants respectfully submit that Harriman does not disclose, teach, or suggest any recognition of a problem associated the mechanism for transporting the carrier having different drive characteristics depending on the direction of carrier travel, and accordingly, having differing vibration characteristics depending on the direction of carrier travel, and does not propose a solution to the problem that includes directionally dependent filtering along the main scan direction.

Further, Applicants respectfully submit that the Examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. *In re Warner*, 154 U.S.P.Q. 173,178 (CCPA 1967).

Applicants thus respectfully request careful consideration of the details of Applicants' argument, which Applicants respectfully submit clearly illustrates that Harriman does not disclose, teach, or suggest that the dampening provided by attachment members 95 provides directionally dependent filtering along the main scan direction of the printhead carrier of vibrations propagating to the printhead carrier.

Still further, as set forth in MPEP 2131, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (Emphasis added). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)(Emphasis added). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990) (Emphasis added).

Applicants respectfully submit that since the claim limitation "said isolator being configured to provide directionally dependent filtering along a main scan direction of said printhead carrier of vibrations propagating to said printhead carrier," is not expressly or inherently described in the Harriman reference, since the identical invention is not shown in Harriman in as complete detail as is contained in the claim, and since the elements in Harriman are not arranged

as required by the claim, claim 1 is not anticipated by Harriman, and Applicants thus respectfully request that the rejection of claim 1 under 35 U.S.C. §102(b) be withdrawn.

Claim 14 is directed to the interface device of claim 1, said isolator having a center of mass, and a centerline of said belt holder being spaced from said center of mass of said isolator by a distance along said main scan direction of said printhead carrier.

Claim 14 is believed allowable due at least to its dependence on otherwise allowable base claim 1.

Claim 18 is directed to a method for attaching a printhead carrier to a carrier drive belt.

Claim 18 recites, in part, coupling an isolator between said belt holder and said printhead carrier, said isolator being configured to provide directionally dependent filtering along a main scan direction of said printhead carrier of vibrations propagating to said printhead carrier.

Applicants respectfully submit that Harriman does not disclose, teach, or suggest coupling an isolator between the belt holder and the printhead carrier, and does not disclose, teach, or suggest an isolator being configured to provide directionally dependent filtering along a main scan direction of the printhead carrier of vibrations propagating to the printhead carrier, as recited in claim 18, for substantially the same reasons as set forth above with respect to claim 1.

In addition, without regard to whether the Harriman carriage interface 70 is joined to the rear surface of the carriage wall 65, the carriage interface 70 is still not the carriage 65, but rather, is a separate component of the Harriman apparatus.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Harriman does not disclose, teach, or suggest the subject matter of claim 18. Claim 18 is thus believed allowable in its present form.



Claim 21 is directed to the method of claim 18, said isolator having a center of mass, and a centerline of said belt holder being spaced from said center of mass of said isolator by a distance along said main scan direction of said printhead carrier.

Claim 21 is believed allowable due at least to its dependence on otherwise allowable base claim 18.

Claim 24 is directed to an imaging apparatus. Claim 24 recites, in part, an isolator coupled between said belt holder and said printhead carrier, said isolator being configured to provide directionally dependent filtering along a main scan direction of said printhead carrier of vibrations propagating to said printhead carrier.

Applicants respectfully submit that Harriman does not disclose, teach, or suggest an isolator coupled between the belt holder and the printhead carrier, and does not disclose, teach, or suggest the isolator being configured to provide directionally dependent filtering along a main scan direction of the printhead carrier of vibrations propagating to the printhead carrier, as recited in claim 24 for substantially the same reasons as set forth above with respect to claims 1 and 18.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Harriman does not disclose, teach, or suggest the subject matter of claim 24.

Claim 37 is directed to the imaging apparatus of claim 24, said isolator having a center of mass, and a centerline of said belt holder being spaced from said center of mass of said isolator by a distance along said main scan direction of said printhead carrier, and is believed allowable due at least to its dependence on otherwise allowable base claim 24.

Claim 41 is directed to an imaging apparatus. Claim 41 recites, in part, a printhead carrier having a receptacle configured for mounting said isolator, said receptacle having a first thrust wall

and a second thrust wall spaced apart from said first thrust wall along a bi-directional main scan direction of said printhead carrier, said isolator being retained between and in engagement with said first thrust wall and said second thrust wall, wherein a structural geometry of said second thrust wall is different than a structural geometry of said first thrust wall to adjust an amount of dampening in each direction along said bi-directional main scan direction to provide directionally dependent filtering of vibrations propagating to said printhead carrier.

In contrast to a printhead carrier having a receptacle configured for mounting an isolator, Harriman discloses that carriage 40 has an upright back wall portion 65 (col. 5, line 14), and that carriage interface member 70 is joined to the rear surface of the carriage wall 65 (col. 5, lines 27-28). Each attachment member 95 includes a web 100 that fits in slots 94 of carriage interface member 70 and slots 92 of drive belt interface member 80 (col. 6, lines 9-15, Fig. 3).

Thus, Harriman discloses that carriage interface member 70 has slots 94 for mounting each attachment member 95. However, carriage interface member 70 is not a printhead carrier, but rather, is an interface member that is joined to a back wall of the Harriman carriage 40.

Accordingly, Harriman does not disclose, teach, or suggest a printhead carrier having a receptacle configured for mounting an isolator, as recited in claim 41.

In addition, Harriman does not disclose, teach, or suggest providing directionally dependent filtering of vibrations, as recited in claim 41, for substantially the same reasons as set forth above with respect to claim 1.

Further, as set forth in Applicants' previous Response, Harriman simply does not disclose, teach, or suggest a structural geometry of a second thrust wall being different than a structural

geometry of a first thrust wall to adjust an amount of dampening in each direction along the bi-directional main scan direction.

Rather, Harriman discloses the use of two similar vibration isolating attachment members 95 that are inserted into slots which are not disclosed as having structural geometry of a second thrust wall different than a structural geometry of a first thrust wall, much less to adjust an amount of dampening in each direction along the bi-directional main scan direction.

It is asserted in the Response to Arguments that relationships clearly shown in the drawings of a reference patent cannot be disregarded.

Applicants respectfully submit that the relationships shown in the Harriman drawings clearly depict that the relevant Harriman features that correspond to the first and second thrust wall illustrate that the Harriman first and second thrust walls have the same geometry that do not adjust an amount of dampening in each direction along the bi-directional main scan direction, and hence, the Harriman drawings are supportive of Applicants' position.

For example, each vibration isolating attachment member 95 has a web 100 that is fitted inside slots 92 of drive belt interface member 80 and also slots 94 of carriage interface member 70 (col. 6, lines 9-15).

It is seen in Figs. 2 and 3 that foot portion 98 fits into slot 94, and that the two inner protrusions, not identified, secure web 100 and retain feet 98, and that the web 100 is what transmits load between drive belt interface member 80 and carriage interface member 70 in the main scan direction. However, Harriman does not in any manner describe that slots 92 and/or slots 94 have a structural geometry of a second thrust wall that is different than a structural geometry of a first thrust wall, as recited in claim 41.

Rather, slots 92 and slots 94 are depicted in Figs. 3 as having the same structural geometry on each side of the slots, and hence, any first thrust wall has the same geometry as a second thrust wall. The Harriman specification simply does not disclose, teach, or suggest otherwise.

Also, Harriman simply does not in any manner disclose, teach, or suggest wherein any thrust wall geometry is used to adjust an amount of dampening in each direction along the bi-directional main scan direction, for at least the reasons set forth above with respect to claim 1.

Rather, although Harriman discloses dampening of vibrations in various directions (col. 6, lines 23-27), and that damping characteristics may be modified for different styles and models of printers (col. 6, lines 64-67), Harriman does not disclose, teach, or suggest any information that pertains to adjusting an amount of dampening in each direction along the bi-directional main scan direction, as recited in claim 41.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Harriman does not disclose, teach, or suggest the subject matter of claim 41.

Claims 42-45 are believed allowable due to their dependence on otherwise allowable base claim 41. In addition, claims 42-45 further and patentably define the invention over Harriman.

For example, claim 43 is directed to the imaging apparatus of claim 41, said second thrust wall being shorter in length than said first thrust wall.

As set forth above with respect to claim 41, Harriman does not disclose, teach, or suggest that slots 92 and/or slots 94 have thrust walls with differing geometry, and hence, Harriman does not disclose, teach, or suggest the second thrust wall being shorter in length than the first thrust wall.

In addition, Harriman does not disclose, teach, or suggest that both of the asserted first and second thrust walls are thrust walls. Rather, the asserted thrust walls do not correspond to thrust walls within the context of Applicants' claimed invention.

Claim 43 is thus believed allowable in its own right.

Claim 44 is directed to the imaging apparatus of claim 41, said second thrust wall being shorter in height than said first thrust wall.

As set forth above with respect to claim 41, Harriman does not disclose, teach, or suggest that slots 92 and/or slots 94 have thrust walls with differing geometry. In addition, Harriman does not disclose, teach, or suggest the subject matter recited in claim 44 for substantially the same reasons as set forth above with respect to claim 43.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Harriman does not disclose, teach, or suggest the subject matter of claims 1, 14, 18, 21, 24, 37 and 41-45, and thus respectfully request that the rejection of claims 1, 14, 18, 21, 24, 37 and 41-45 under 35 U.S.C. 102(b) be withdrawn.

For the foregoing reasons, Applicants submit that the cited reference does not disclose, teach, or suggest the subject matter of the appended claims. The appended claims are therefore in condition for allowance, and Applicants respectfully request withdrawal of all rejections and allowance of the claims.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorize that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

Should any question concerning any of the foregoing arise, the Examiner is invited to  
telephone the undersigned at (317) 894-0801.

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